

The Effects of Emotion Regulation on Negative Affect During a Stressful Situation

Undergraduate Research Thesis

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By

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Abstract

Different emotion regulation strategies have been categorized as adaptive or maladaptive due to their positive or negative associations with symptoms of psychopathology (Aldao, Nolen-Hoeksema & Schweizer, 2010); however, difficulties in emotion regulation can also be a result of a person's lack of clarity about how to implement the strategies (Aldao and Vine, 2014). I examined self-reported use, observer-coded quality of use, accuracy, and resulting effectiveness of three emotion regulation strategies (cognitive reappraisal, humor, and distraction) among undergraduates (n=97) when viewing video clips aimed at arousing disgust. Surprisingly, the accuracy correlations for each emotion regulation strategy, indexed by coherence between self-reported use and observer-coded quality of use, while significant, were small. Our results suggest that self-reported use of humor and distraction are associated more with effectiveness than either the quality or accuracy of the use. One possible explanation is that there may be a placebo-type effect such that an individual need only to believe that they are using the strategy correctly in order to reduce negative affect. These effects were surprisingly not mirrored in cognitive reappraisal, which may be a result of either a structural problem in the study's design or reflective of a difficulty in implementing or measuring reappraisal use. This study may have implications for how emotion regulation strategies are taught and maintained in mental health therapy.

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Introduction

Mental illness affects nearly everybody in contemporary society, whether an individual is personally affected by it or it impacts a family member, a friend, or a coworker. In fact, the prevalence for any disorder in a 12-month period is estimated at 26.2% (Kessler et al., 2005). Recently, researchers have hypothesized that emotion regulation may play an important role in the etiology, maintenance, and treatment of these disorders. Emotion regulation is the process through which individuals control their emotions either consciously or unconsciously in response to everyday situations (Gross, 1998). While successful emotion regulation has been associated with improved health outcomes, relationship, and academic and work performance (Brackett & Salovey, 2004), difficulties in emotion regulation are associated with many forms of psychopathology (Gross & Muñoz 1995), such as depression and anxiety, borderline personality disorder, bipolar disorder, social anxiety, and eating and substance-use disorders, among others. One possibility is that individuals who habitually resort to these strategies over time experience longer and more severe periods of distress (Aldao, Nolen-Hoeksema & Schweizer, 2010). Emotion regulation deficits have also been found to be a mediator between emotional clarity and psychopathology (Vine and Aldao, 2014). If a person cannot identify their feelings they may be unable to take the necessary steps, such as implementing an emotion regulation strategy, to help themselves (Barrett et al., 2001).

Due to their positive or negative associations with symptoms of psychopathology, different emotion regulation strategies have been categorized as either adaptive or maladaptive. Cognitive reappraisal, one of the focuses of this study, is an emotion regulation strategy that is typically considered adaptive because it is linked to better mental health (Aldao, Nolen-

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Hoeksema & Schweizer, 2010). It consists of reframing a stressful situation as benign or positive in order to reduce negative affect (Gross, 1998). For example, if a student performed poorly on a quiz, he could use cognitive reappraisal to generate statements such as 'It's not worth that much overall' or 'I'll do better on the next assignment.'

More recent literature has suggested that humor can also act as an adaptive emotion regulation strategy because it allows for the expression of negative emotion without the individual discomfort that would normally accompany it. Humor as an emotion regulation strategy has not been as well studied as other strategies, but it has been found to be more effective at down-regulating negative emotion than cognitive reappraisal (Sampson, Glassco, Lee & Gross, 2014). Positive humor is associated with numerous health benefits. In addition to it relaxing muscles and increasing respiration it also increases the production of pain-killing endorphins while decreasing the production of stress-related hormones (Martin, 2004). It has also been shown to be associated with lower levels of loneliness, lower symptoms of depression and higher self-esteem (Overholser, 1992). More recent literature suggests that humor functions as a type of cognitive reappraisal, different than the more often studied rational reappraisal defined earlier in this section (Kugler & Kuhbandner, 2015). Thus, understanding how humor functions in regulating emotions is an important question for future research.

Distraction is one of several emotion regulation strategies considered maladaptive because it is linked to poor mental health (Aldao, Nolen-Hoeksema & Schweizer, 2010). Put simply, it is the avoidance of psychological experiences, such thoughts, emotions, sensations, memories, or urges. This strategy has been shown to increase negative thoughts and prevent the individual from taking necessary action (Aldao, Nolen-Hoeksema & Schweizer, 2010). The

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increased avoidance of these experiences is conceptualized by some to be at the core of psychopathology (e.g., Hayes, Strosahl, & Wilson, 1999).

In much of the existing research on this topic, emotion regulation usage is measured by asking participants the extent to which they were using various strategies (i.e., “To what extent were you trying to change your thoughts to feel differently?”) during emotional stimuli. However, this self-report does not necessarily tell us information about the accuracy of self-reported emotion regulation use. For instance, a participant may report that they are using certain strategies, but closer examination of the phrases or descriptions of their ER may reflect a poor understanding or misapplication of the strategy. As Troy and colleagues said, “self-reported reappraisal *use* may be crucially different from the *ability* to use cognitive reappraisal effectively” (Troy et al., 2010).

This may be true for cognitive reappraisal and for the many other emotion regulation strategies because self-report measures are subject to individual biases. An individual may report having used, for example, cognitive reappraisal, but there is often no way to determine whether their self-report measures are accurate by looking only at the rating of endorsement for using the strategy, without the specifics of *how* the strategy was used. Thus, the present study seeks to examine the relationships between self-reported use of emotion regulation and the descriptions participants provide for how they implemented the strategy (i.e., phrases that they used) and determine the extent to which these concepts are correlated. Discrepancies between these two could indicate a lack of clarity about how to use strategies or a lack of awareness of how these strategies are implemented and may play a part in an individual’s difficulties with emotion regulation. I will calculate the accuracy rating by examining whether self-reported use of

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emotion regulation correlates with descriptions that the participants provide as rated by myself and another research assistant. I will use this accuracy rating to make the following predictions.

Hypotheses:

1. Higher accuracy ratings will predict increased *effectiveness* of ER (as measured by change in affect after using the strategy)
2. Lower accuracy will predict increased levels of emotion dysregulation
3. Lower accuracy will predict increased levels of psychopathology (i.e., depression, generalized anxiety disorder, social anxiety disorder, and obsessive-compulsive disorder).

Methods

A total of 97 Ohio State undergraduate students (51.5% female) were recruited through the Department of Psychology's Research Experience Program. Participants were required to be native English speakers. The mean age of the sample was 19.7 (SD = 2.26, Range: 18 to 32) and most of the participants (83%) self-identified as Caucasian. For participating in the study, the participants received 1.5 REP credits. The study took approximately 2 hours to complete. After signing the consent form, participants were asked to complete questionnaires assessing habitual use of emotion regulation strategies and symptoms of psychopathology. The present study consists of a secondary analysis from the below protocol, which more broadly measured the effectiveness of humor, reappraisal, and distraction in response to controllable and uncontrollable emotional stimuli. The Ohio State University Institutional Review Board approved all measures and procedures.

Self-report questionnaires.

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Centers for Epidemiological Studies – Depression Scale (CES-D). The CES-D (Radloff, 1977) is a 20-item self-report measure that assesses current depressive symptoms scored on a 3-point scale with higher scores indicating greater depressivity.

Social Interaction Anxiety Scale (SIAS). The SIAS (Mattick & Clarke, 1998) is a 20-item self-report measure that assesses symptoms of social anxiety disorder, particularly anxiety experienced in dyads or groups. Items are scored on a 5-point scale ranging from 0 to 4 with total scores ranging from 0 to 80. A score of 34 has been identified as a clinical cutoff score (Brown et al., 1997).

Obsessive Compulsive Inventory – Revised (OCI-R). The OCI-R (Foa et al., 2002) is an 18-item self-report measure that assesses symptoms of obsessive compulsive disorder over the past month. It has 6 subscales, which are washing, checking, obsessing, ordering, neutralizing, and hoarding.

Generalized Anxiety Disorder Questionnaire – IV (GADQ-IV). The GADQ-IV (Newman et al., 2002) is a 9-item self-report measure that assesses symptoms of GAD as delineated in DSM-IV (APA, 2000). Five items measure the excessiveness and uncontrollability of worry, one is open-ended and asks for a list of the most frequent worry topics, two items on a 9-point scale measure the clinical distress and functional impairment associated with excessive worry and anxiety, and a final item asks about the presence of six physical symptoms that fall under the DSM-IV criteria for GAD. Total scores range from 0 to 13 with a clinical cutoff of 5.7 (e.g., Newman et al., 2002).

Difficulties with Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure that assesses habitual difficulties regulating emotions in a number of dimensions. Items are rated on a 5-point scale with higher scores indicating more

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difficulties regulating emotions. The DERS can be calculated as a total score or as 6 individual subscales (Nonacceptance of Emotional Responses, Difficulties Engaging in Goal Directed Behavior, Impulse Control Difficulties, Lack of Emotional Awareness, Limited Access to Emotion Regulation Strategies, and Lack of Emotional Clarity)

Emotion Regulation Questionnaire (ERQ). The ERQ (Gross & John, 2003) measures the habitual use of cognitive reappraisal (6 items) and excessive suppression (4 items).

Experimental Task.

Upon arriving to the lab, participants provided informed consent and then completed questionnaires assessing use of emotion regulation strategies and symptoms of psychopathology. The research assistant then hooked the participants up to the psychophysiological sensors for a 5-minute resting baseline (data not included in the present study). The protocol consisted of a 2 (controllability) x 3 (ER strategy) within subject design, with a total of 6 blocks. The blocks were presented in a counterbalanced order and corresponded to each possible combination of situation type (controllable or uncontrollable) and emotion regulation strategy (distraction, reappraisal, and positive humor). Each block consisted of a 2-minute long disgust video designed to provoke high levels of disgust and anxiety. Prior to each block, participants were instructed on how to use one of the three regulation strategies and then instructed to use it throughout the video. The participants were also told whether the upcoming block would be controllable or uncontrollable. In the controllable blocks, participants were able to reduce the size of the video, whereas in the uncontrollable blocks participants were required to watch the video at full size for the entire video. Additionally, participants rated their negative affect (anxiety, anger, desire to eat, disgust, irritation, sadness, frustration) and positive affect before and after each block. The difference score between their post-block affect and their pre-block affect will indicate the effectiveness of

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their emotion regulation. For example, lower negative affect scores would indicate a more successful use of emotion regulation. Disgust and desire to eat are the primary outcome variables we will be analyzing, as we expect that increased emotion regulation strategy use during a disgust-arousing video will be correlated strongly with a larger change in disgust. Participants were then asked to rate on a 0-100 rating scale their use of different emotion regulation strategies during the task (i.e. “To what extent were you [distracting, worrying, allowing/accepting, reframing, suppressing, using humor]”) and given a text box to describe phrases or methods they used to regulate their emotions during the stimulus.

Coding.

For the emotion regulation strategies, I first coded the number of statements generated by each participant for each condition. I then assessed the quality of the ER strategy on a 5-point scale. Using cognitive reappraisal as an example, 0 would indicate the participant used no reappraisal, 1 provided an unclear example of reappraisal, 2 used multiple examples with other ER strategies listed as well, 3 exclusively used one example of reappraisal, and 4 exclusively used multiple examples of reappraisal. After completing this coding, I trained a second research assistant using the same system, allowing me to calculate the interrater reliabilities. I then averaged my scores and the second-coder scores in order to generate my two desired ER measures: observer coded use of the strategy (objective use of strategy) and the correlation between this and the visual analog scale that the participant used to report their use of strategy (accuracy of use).

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Results

The questionnaire data was first examined to ensure that it meets assumptions of normality, with outliers that were plus or minus 3 standard deviations from the mean identified and removed. In this study, I collapsed across the controllable and uncontrollable ER blocks as analysis suggested the manipulation was unsuccessful and there were no differences in emotional responses or ER usage between these blocks.

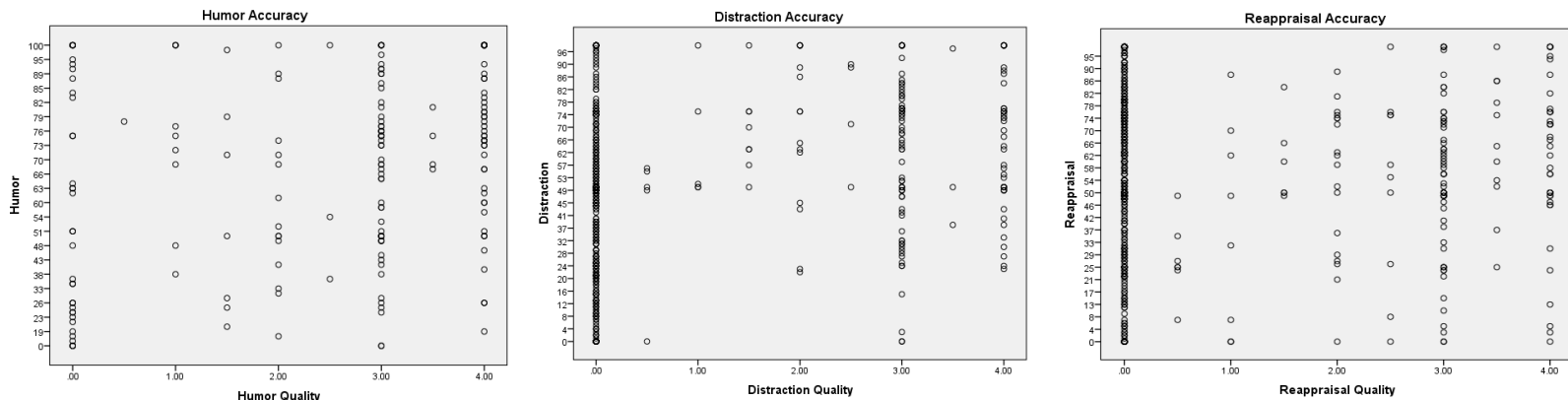
The following table outlines the intraclass correlations (interrater reliability), all of which were high enough to use.

Variable	ICC
Humor number correct	.965
Humor quality	.896
Reappraisal number correct	.948
Reappraisal quality	.943
Distraction number correct	.967
Distraction quality	.959

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Hypothesis 1: Predicting ER effectiveness

I calculated accuracy by using correlations between the self-reported use of emotion regulation and quality of use, which was determined by the objective coding of the participant's responses. A high positive correlation would indicate greater coherence between self-reported and objective use of the strategy and indicate greater awareness of emotion regulation ability. In turn, a low, or divergent, correlation would indicate poorer coherence and decreased awareness. The accuracy correlations graphed below (figures 1.1-1.3) were as follows: cognitive reappraisal ($r = .205, p < .05$), humor ($r = .272, p < .05$) and distraction ($r = .303, p < .05$). Through mixed MANOVAs we determined that accuracy predicted a change in disgust ($\beta = -.629, t(181) = -2.871, p = .005$) for humor, but not for reappraisal or for distraction (all p 's $> .191$). Additionally, a change in disgust or desire to eat was not significantly correlated with the accuracy of any of the three ER strategies (all p 's $> .10$).



Figures 1.1-1.3

I expanded the analysis to also examine correlations between quality and self-reported use of emotion regulation strategies and effectiveness as measured by change in disgust and change in desire to eat. A change in disgust was observed in both humor quality ($r = -.137, p <$

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.01) and self-reported humor use ($r = -.170, p < .01$), an effect that was mirrored only in self-reported distraction use ($r = -.175, p < .01$). Unexpectedly, the reverse was found for cognitive reappraisal, which previous literature had suggested as being an adaptive strategy. Our results found a positive correlation ($r = .210, p < .05$) between self-reported cognitive reappraisal use and a change in disgust. This indicates that the more participants reported using cognitive reappraisal, the greater amount of disgust they reported experiencing. A change in desire to eat was correlated both with self-reported humor use ($r = .154, p < .01$) and with self-reported reappraisal use ($r = -.186, p < .01$), however the negative correlation with reappraisal is contrary to what we expected to find.

Hypothesis 2: Predicting emotion dysregulation

Accuracy and quality of reappraisal, humor, and distraction were not correlated with difficulties in emotion regulation as measured by the DERS. Self-reported use of reappraisal was significantly negatively correlated ($r = -.185, p < .01$). A similar correlation was found with self-reported use of humor ($r = -.298, p < .05$). This indicates that the more participants reported using the strategy, the less habitual difficulties regulating their emotions they experienced. All other p-values were greater than .05.

Hypothesis 3: Predicting symptoms of psychopathology

There were no significant correlations with symptoms of psychopathology for accuracy or self-reported use for cognitive reappraisal (all p 's > 0.001). Cognitive reappraisal quality had an opposite trend than expected such that it was positively correlated with symptoms of social anxiety ($r = .142, p < .05$). Reappraisal quality was also correlated with symptoms of OCD, as measured by the OCI-R ($r = -.150, p < .05$). There were no significant correlations between reappraisal quality and symptoms of generalized anxiety or depression.

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Humor accuracy was not significantly correlated with any symptoms of psychopathology (all p 's $> .01$). Symptoms of OCD were negatively correlated with humor quality ($r = -.119$, $p < .01$). Self-reported use of humor was also negatively correlated with different forms of psychopathology: depression ($r = -.177$, $p < .01$), generalized anxiety ($r = -.242$, $p < .05$) and social anxiety ($r = -.290$, $p < .05$).

None of the measurements of distraction had any significant correlations with symptoms of psychopathology (all p 's $> .01$)

Discussion

The findings for humor and distraction suggest that both emotion regulation strategies do play a role in reducing negative affect, in particular disgust. Surprisingly, however, was the finding that self-reported humor and distraction seems to have more of an impact on negative affect. This may reflect a placebo-type where the affective outcomes are more reliant on whether or not a participant believes he or she implemented the strategy correctly than whether they actually do. Though this effect is yet to be replicated in other studies, it could have a broad impact on how emotion regulation is research and implemented in a general population.

There are a few possible explanations for the unexpected reverse correlations we found between cognitive reappraisal and both a change in disgust and symptoms of psychopathology. The first is that the coding of the cognitive reappraisal statements by the research assistants, while high in interrater reliability (average ICC = .943, 95% CI: .933 to .952), may not have been an accurate reflection of the participants' overall ability to use reappraisal correctly. This may be a result of a discrepancy between the measurement of cognitive reappraisal in the current study and as it is measured in the ERQ. The correlation between reappraisal quality and ERQ reappraisal was only .049. Humor and distraction may have been more straightforward, which is

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why the results are more consistent with expectations. However, the concept of reappraisal may be more difficult for participants to grasp or implement.

It has also previously been identified that reality based reappraisal (ex: “The film clip isn’t real”) is associated with smaller increases in positive affect (McRae, Ciesielski, & Gross, 2012). Though our study is interested in changes in negative affect, the same effect might be in play here. Future replications of this study may prompt participants to use a specific type of reappraisal or give a more thorough example, although this presents the opportunity for participants to copy the provided example rather than generate their own.

One last explanation for the unexpected cognitive reappraisal findings may be that a demand characteristic was in play. Participants might not have been using the strategy properly but, when prompted, felt the need to use a quality example of cognitive reappraisal due to their perception of the researcher’s expectations. In the future, participants could be prompted to provide more honest and thorough descriptions of their emotion regulation strategy use.

There are a few noteworthy limitations to this study. First, the sample consisted mostly of an undergraduate population, which limits the study in its external validity. Future replications would benefit from including a more broad population in age, race, and location. Additionally, it would be interesting to include a clinical population in future studies. Maybe we are seeing placebo-type effects with humor and distraction in an average population, but emotion regulation quality or accuracy may have a larger role in reducing negative affect among people with different forms of psychopathology. It would be interesting to explore further how different types of humor and reappraisal function using the present coding of this data. This may indicate that a specific type of either (ex: regulating thoughts about the content of the situation) may have more

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powerful down-regulating effects on negative emotion than other types (ex: regulating thoughts about the experimental situation).

Despite these limitations, this study may provide valuable information regarding how emotion regulation, in particular cognitive reappraisal, is researched and, in the long term, implemented in mental health therapy.

References

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion regulation strategies across psychopathology: A meta-analysis. *Clinical Psychology Review, 30*, 217-237.
- Barrett, L. F., Gross, J., Christensen, T. C., & Benvenuto, M. (2001). Knowing what you're feeling and knowing what to do about it: Mapping the relation between emotion differentiation and emotion regulation. *Cognition & Emotion, 15*, 713-724.
- Brackett, M. A., & Salovey, P. (2004). Measuring emotional intelligence as a mental ability with the Mayer-Salovey-Caruso Emotional Intelligence Test. In G. Geher (Ed.), *Measurement of emotional intelligence* (pp. 179-194). Hauppauge, NY: Nova Science Publishers.
- Brown, E. J., Turovsky, J., Heimberg, R. G., Juster, H. R., Brown, T. A., & Barlow, D. H. (1997). Validation of the Social Interaction Anxiety Scale and the Social Phobia Scale across the anxiety disorders. *Psychological Assessment, 9*, 21-27.
- Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Saalkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: Development and validation of a short version. *Psychological Assessment, 14*, 485-496.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26*, 41-54.
- Gross, J. J. (1998). Antecedent-and response-focused emotion regulation: divergent

THE EFFECTIVENESS OF EMOTION REGULATION

- consequences for experience, expression, and physiology. *Journal of personality and social psychology*, 74(1), 224.
- Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348-362.
- Gross, J. J., & Muñoz, R. F. (1995). Emotion regulation and mental health. *Clinical psychology: Science and practice*, 2(2), 151-164.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. Guilford Press.
- Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry*, 62(6), 617-627.
- Kugler, L., & Kuhbandner, C. (2015). That's not funny!—But it should be: effects of humorous emotion regulation on emotional experience and memory. *Frontiers in psychology*, 6.
- Martin, R. A. (2004). Sense of humor and physical health: Theoretical issues, recent findings, and future directions. *Humor: International Journal of Humor Research*, 17, 1-19.
- Martin, R. A., Puhlik-Doris, P., Larsen, G., Gray, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality*, 37, 48–75. DOI: 10.1016/S0092-6566(02) 00534-2
- McRae, K., Ciesielski, B., & Gross, J. J. (2012). Unpacking cognitive reappraisal: goals, tactics, and outcomes. *Emotion*, 12(2), 250.
- Newman, M. G., Zuellig, A. R., Kachin, K. E., Constantino, M. J., Przeworski, A., Erickson, T.,

THE EFFECTIVENESS OF EMOTION REGULATION

- et al. (2002). Preliminary reliability and validity of the generalized anxiety disorder questionnaire-IV: a revised self-report diagnostic measure of generalized anxiety disorder. *Behavior Therapy*, 33, 215-233.
- Overholser, J. C. (1992). Sense of humor when coping with life stress. *Personality & Individual Differences*, 13, 799- 804.
- Papageorgious, C., & Wells, A. (2003). An empirical test of a clinical metacognitive model of rumination and depression. *Cognitive Therapy and Research*, 27, 261-273.
- Radloff, L.S. (1977). The CED-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Roth, D. A., Eng, W., & Heimberg, R. G. (2002). Cognitive behavior therapy. *Encyclopedia of psychotherapy*, 451-458.
- Samson, A. C., Glassco, A. L., Lee, I. A., & Gross, J. J. (2014). Humorous coping and serious reappraisal: short-term and longer-term effects. *Europe's Journal of Psychology*, 10(3), 571-581.
- Troy, A. S., Wilhelm, F. H., Shallcross, A. J., & Mauss, I. B. (2010). Seeing the silver lining: cognitive reappraisal ability moderates the relationship between stress and depressive symptoms. *Emotion*, 10(6), 783
- Van Overveld, M., de Jong, P. J., Peterse, M. L., Cavanagh, K., & Davey, G. C. L. (2006). Disgust propensity and disgust sensitivity: Separate constructs that are differentially related to specific fears. *Personality and Individual Differences*, 41, 1241-1252.
- Vine, V., & Aldao, A. (2014). Impaired emotional clarity and psychopathology: A transdiagnostic deficit with symptom-specific pathways through emotion regulation. *Journal of Social and Clinical Psychology*, 33(4), 319-342.

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Ward, A., Lyubomirsky, L, Sousa, L, & Nolen-Hoeksema, S (2003). Can't quite commit:

Rumination and uncertainty. *Personality and Social Psychology Bulletin*, 29, 96-107.

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Correlation Matrices

Reappraisal

		Correlations											
		Reappraisal Quality	Reappraisal Self-Report	Reappraisal Accuracy	Change Disgust	Change in Desire to Eat	CES-D total	GADQ-IV Total Continuous	OCI total	SIAS Total score	SPS total	DERS total	ERQ Reappraisal
Reappraisal Quality	Pearson Correlation	1	.205**	-.563**	.054	-.036	.017	.073	-.150**	.142**	.011	-.051	.049
	Sig. (2-tailed)		.006	.000	.305	.492	.755	.167	.004	.007	.833	.333	.360
	N	364	181	181	360	360	352	364	356	364	352	360	356
Reappraisal Self-Report	Pearson Correlation	.205**	1	.516**	.210**	-.186*	-.052	.111	.046	.069	-.038	-.185*	.121
	Sig. (2-tailed)	.006		.000	.004	.011	.484	.129	.532	.346	.609	.012	.102
	N	181	188	181	187	187	182	188	184	188	182	186	184
Reappraisal Accuracy	Pearson Correlation	-.563**	.516**	1	.061	-.101	.026	.010	.110	-.027	-.066	-.080	.068
	Sig. (2-tailed)	.000	.000		.418	.177	.729	.891	.143	.715	.385	.285	.367
	N	181	181	181	180	180	175	181	177	181	175	179	177

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Distraction

		Correlations										
		Distraction Quality	Distraction Self-Report	Distraction Accuracy	Change in Disgust	Change in Desire to Eat	CES-D total	GADQ-IV Total Continuous	OCI total	SIAS Total score	SPS total	DERS total
Distraction Quality	Pearson Correlation	1	.303**	-.451**	-.043	.007	.030	.069	-.060	.099	-.021	-.034
	Sig. (2-tailed)		.000	.000	.412	.896	.580	.186	.256	.060	.697	.523
	N	364	182	182	364	364	352	364	356	364	352	360
Distraction Self-Report	Pearson Correlation	.303**	1	.533**	-.175*	.032	-.075	.081	.094	.073	.046	-.108
	Sig. (2-tailed)	.000		.000	.016	.658	.312	.268	.205	.322	.538	.141
	N	182	188	182	188	188	182	188	184	188	182	186
Distraction Accuracy	Pearson Correlation	-.451**	.533**	1	-.023	-.003	-.027	.035	.186*	.010	.034	-.038
	Sig. (2-tailed)	.000	.000		.761	.965	.721	.643	.013	.891	.656	.609
	N	182	182	182	182	182	176	182	178	182	176	180

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Humor

		Correlations										
		Humor Quality	Humor Self-Report	Humor Accuracy	Change in Disgust	Change in Desire to Eat	CES-D total	GADQ-IV Total Continuous	OCI total	SIAS Total score	SPS total	DERS total
Humor Quality	Pearson Correlation	1	.272**	-.641**	-.137**	.004	-.020	.026	-.119*	-.053	-.040	-.071
	Sig. (2-tailed)		.000	.000	.009	.941	.705	.621	.024	.308	.456	.176
	N	366	183	183	364	364	354	366	358	366	354	362
Humor Self-Report	Pearson Correlation	.272**	1	.413**	-.170*	.154*	-.177**	-.242**	-.032	-.290**	-.248**	-.298**
	Sig. (2-tailed)	.000		.000	.020	.035	.016	.001	.669	.000	.001	.000
	N	183	189	183	188	188	183	189	185	189	183	187
Humor Accuracy	Pearson Correlation	-.641**	.413**	1	-.015	.127	-.056	-.203**	.099	-.117	-.086	-.118
	Sig. (2-tailed)	.000	.000		.845	.086	.463	.006	.185	.113	.253	.112
	N	183	183	183	182	182	177	183	179	183	177	181

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).